

WHAT IS CLAIMED IS:

5 1. A laser scanning system which employs a scan data signal processor having a plurality of processing paths each processing the same data signal derived from the output of a photodetector to detect bar code symbols therein and generate data representing said bar code symbols, wherein said plurality of processing paths have different operational characteristics.

10 2. The laser scanning system of claim 1, wherein each signal processing path includes a peak detector that identifies time periods during which a first derivative signal exceeds at least one threshold level, and wherein the at least one threshold level for one of the respective paths is different than the at least one threshold level for another of the respective paths.

15 3. The laser scanning system of claim 2, wherein the at least one threshold level for a respective path is a dynamic threshold.

20 4. The laser scanning system of claim 2, wherein the at least one threshold level for a respective path is a dynamic threshold that changes as the first derivative signal changes.

5. The laser scanning system of claim 4, wherein the dynamic threshold is based upon a DC bias value and a portion of the first derivative signal.

25 6. The laser scanning system of claim 1, wherein each signal processing path performs low pass filtering, wherein cut-off frequency of such low pass filtering for one of the respective paths is different than cut-off frequency of such low pass filtering for another of the respective paths.

30 7. The laser scanning system of claim 1, wherein each signal processing path performs voltage amplification, wherein gain of such voltage amplification for one of the

respective paths is different than gain of such voltage amplification for another of the respective paths.

5        8.        The laser scanning system of claim 1, wherein each signal processing path performs analog signal processing functions with analog circuitry.

9.        The laser scanning system of claim 1, wherein each signal processing path performs digital signal processing functions with digital signal processing circuitry.

10       10.       The laser scanning system of claim 9, wherein said digital signal processing circuitry comprises a programmed digital signal processor and associated memory.

11       11.       The laser scanning system of claim 1, wherein each signal processing path includes zero crossing circuitry that identifies zero crossings in a second derivative signal derived from the scan data signal and data gate logic that gates such zero crossings to output only those that occur substantially concurrent with a peak in a second derivative signal derived from the scan data signal.

12       12.       The laser scanning system of claim 1, wherein each processing path is performed concurrently with analog signal processing circuitry.

13       13.       The laser scanning system of claim 1, wherein each processing path is performed concurrently with digital signal processing circuitry.

25       14.       The laser scanning system of claim 13, wherein each processing path is performed sequentially based on real-time status of working buffer that stores data values for processing.